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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/907,182	08/06/1997	SHUNPEI YAMAZAKI	07977/023002	7978

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EXAMINER	
DIAMOND, ALAN D	

ART UNIT	PAPER NUMBER
1753	

DATE MAILED: 03/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	08/907,182	YAMAZAKI ET AL.	
	Examiner	Art Unit	
	Alan Diamond	1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 February 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *See Continuation Sheet* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *26-29,32-37,39-45,47-54,57-62,64-70,73-76,78,79,81-91,93-99 and 103-107* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 08/623,336.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims pending in the application are 26-29,32-37,39-45,47-54,57-62,64-70,73-76,78,79,81-91,93-99 and 103-107.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 15, 2005 has been entered.

Comments

2. The obviousness-type double patenting rejection over the claims of U.S. Patent 6,808,968 have been overcome by Applicant's amendment of independent claims 26, 34, 42, 51, 59, 67, 76, 82, and 86 so as to form a gettering layer comprising "phosphorus silicate glass". The claims of said patent do not lead a skilled artisan to phosphorus silicate glass.

3. The objection to claim 103 under 37 CFR 1.75(c) has been overcome by Applicant's of claims 26, 34, 42, 51, 59, 67, 76, 82, and 86 so as to no longer recite the use of a CVD technique.

Double Patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 81, 83-85, 87-91, 93-99, 104, 105, and 107 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-62 of U.S. Patent No. 5,961,743. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the '743 patent teach the limitations of the instant claims, the main difference being that the claims of the '743 patent do not specifically require the 0.1 to 0.2 μm depth from the surface of the crystallized semiconductor film when the phosphorous gettering material is introduced into a surface of the crystallized semiconductor film. For example, claim 9 of the '743 patent (which has the instant removing step) recites "introducing phosphorous into at least a portion of said semiconductor film after the crystallization". When one looks to the specification of the '743 patent for support of this limitation in the claim, it is clearly taught that the depth should be 0.1 to 0.2 μm (see col. 8, lines 48-51). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have to have introduced the phosphorus in the claimed method of the '743 patent to a depth of 0.1 to 0.2 μm because such is within the scope of the claims of the '743 patent when the claim of said patent are read in light of the support for the claims in the specification of the '743 patent.

With respect to the instant pendent claims, the claims of the '743 patent render obvious these claims in view of either the claims of the '743 patent or support in the specification of said '743 patent. In particular, with respect to instant claim 90, the use of silicon oxide can be found at col. 7, line 51 of the '743 patent. With respect to claim 91, a concentration of metal of not higher than 5×10^{18} atoms/cm^3 can be found at col. 3, line 47 of the '743 patent. With respect to claims 93-95, the CVD and sputtering techniques can be found at col. 7, lines 51-65, of the '743 patent. With respect to claim 96, see claim 18 of the '743 patent. With respect to claim 97, see claim 21 of the '743 patent. With respect to claim 98, see claim 13 of the '743 patent. With respect to claim 99, see claim 8 of the '743 patent. With respect to claim 104, see claim 1 of the '743 patent. With respect to claim 105, see claims 5 and 6 of the '743 patent, as well as col. 8, lines 43-48, of said patent. With respect to claim 107, see claim 1 of the '743 patent. The "at least a portion" of the semiconductor film encompasses the "entire surface" in said claim 107.

6. Claims 26, 28, 29, 32-34, 36, 37, 39-42, 44, 45, 47-50, 76, 78, 79, 90, 91, 93-95, 103, and 106 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 27-34 of U.S. Patent No. 6,821,710. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 27 of said patent teaches forming an amorphous semiconductor film comprising silicon on an insulating surface; providing the semiconductor film with a catalyst metal, such as Ni; crystallizing the semiconductor film; forming the instant phosphorus silicate glass over the semiconductor film; and

heating so as to perform the gettering. With respect to claims 28, 36, and 44, the determination of an appropriate time for the gettering in the claims of the '710 patent would have been within the skill of an artisan. With respect to claims 29, 37, and 45, the determination of an appropriate phosphorus concentration in the phosphorus silicate glass in the claims of the '710 patent would have been within the skill of an artisan. With respect to claims 33, 40, and 49, and 76, the instant removing step is rendered obvious by claim 32 of the '710 patent. With respect to claim 34 and its dependent claims, the claims of the '710 patent do not require doping, and thus, the use of a substantially intrinsic semiconductor would have been within the skill of an artisan. With respect to claims 41 and 50, the determination of an appropriate temperature to conduct the gettering in the claims of the '710 patent would have been within the skill of an artisan. Instant claim 42 and its dependent claims call for heating and gettering in a nitrogen atmosphere. However, with guidance from the specification of the '710 patent, the heating and gettering in the claims of said patent are done using an RTA method, which, it is the Examiner's position, is performed in a "nitrogen atmosphere" (see col. 3, lines 38-48; and col. 8, lines 45-52). With respect to instant claim 90, the use of silicon oxide can be found at col. 7, line 58 of the '710 patent. With respect to claim 91, a concentration of metal of not higher than 5×10^{18} atoms/cm^3 would have been within the skill of an artisan. With respect to claims 93-95, the CVD and sputtering techniques can be found at col. 7, lines 46-53, of the '710 patent. With respect to claim 103, see col. 8, lines 34-37, of the '710 patent. With respect to claim 106, see Figures 1A-1F.

7. Claims 27, 35, 43, 51-54, 57-62, 64-70, 73-75, 82, 86, 96-99, 104, and 105 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 27-34 of U.S. Patent No. 6,821,710 as applied to claims 26, 28, 29, 32-34, 36, 37, 39-42, 44, 45, 47-50, 76, 78, 79, 90, 91, 93-95, 103, and 106 above and further in view of Suzuki et al (U.S. Patent 5,644,156). Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the '710 patent teach the limitations of said claims 27, 35, 43, 51-54, 57-62, 64-70, 73-75, 82, 86, 96-99, 104, and 105, the difference being that the claims of said patent do not specifically teach preparing a photoelectric conversion device, or the use of boron doping in the semiconductor, or the formation of a junction. However, claim 33 of the '710 patent teaches the preparation of an EL device. Suzuki et al teaches a semiconductor device that has the instant semiconductor doping and that can be used to prepare a photoelectric conversion device or an EL device, with a p-n junction (see Figures 1 and 4, col. 4, line 46 through col. 5, line 15; col. 9, lines 17-25; and col. 29, lines 8-15). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have prepared the semiconductor device in the claims of the '710 patent as either an EL device or a photoelectric conversion device having doping and a p-n junction because it is conventional in the art to form and EL device or photoelectric conversion device with doped semiconductors and a p-n junction, as shown by Suzuki et al. With respect to claim 96, the determination of an appropriate temperature to conduct the gettering in the claims of the '710 patent would have been within the skill of an artisan. With respect to claim 98, the determination of

an appropriate time the gettering would have been within the skill of an artisan. With respect to claim 99, see claim 29 of the '710 patent. With respect to claim 105, see col. 8, lines 38-43, of the '710 patent.

Further Comments by the Examiner

8. It is noted that an obviousness-type double patenting rejection over the claims of the '743 patent had previously been withdrawn by the Examiner in the Office action mailed 10/06/2003. However, upon reconsideration, the claims of the '743 patent, supported by what is disclosed in the specification of the '743 patent, renders obvious the instant claims.

9. It is noted that claim 107 has not been rejected in the obviousness-type double patenting rejection using the '710 patent as the primary reference. This is correct because claim 27 of the '710 patent uses a mask that prevents the phosphorus from being introduced into an entire surface of the crystallized semiconductor film.

Response to Arguments

10. Applicant's arguments with respect to the instant claims have been considered but are moot in view of the new grounds of rejection.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 6,858,480 is hereby made of record.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan Diamond whose telephone number is 571-272-

1338. The examiner can normally be reached on Monday through Friday, 5:30 a.m. to 2:00 p.m. ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alan Diamond
Primary Examiner
Art Unit 1753

Alan Diamond
March 21, 2005